

Patent claims.

5 1. A microparticle with a support structure and CD28-specific superagonistic monoclonal antibodies (mAbs) bonded to the support structure or a compound mimicking the above.

10 2. A microparticle according to claim 1, wherein the mAbs are directly and preferably covalently bonded to the surface of the support structure.

15 3. A microparticle according to claim 1, wherein the mAbs are indirectly bonded to the surface of the support structure by a spacer compound preferably covalently bonded to the surface of the support structure.

20 4. A microparticle according to claim 3, wherein the spacer compound is selected from the group consisting of "organic polymers, peptides, proteins, and combinations of such substances".

25 5. A microparticle according to one of claims 1 to 4, wherein the surface of the support structure is formed by an organic polymer, which is preferably selected from the group con-

sisting of "polystyrene, polyurethane, polyster, polyvinylpyridine, polyvinylamine, polyethyleneimine, chitosan, and mixtures of such polymers".

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6. A microparticle according to claim 5, wherein the organic polymer comprises reactive groups, which for instance is glycidylether.

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7. A microparticle according to claim 5 or 6, wherein the organic polymer is surface activated by treatment with an activation reagent, which preferably is p-toluenesulfonyl chloride.

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8. A microparticle according to one of claims 1 to 7, wherein the diameter of the support structure is in the range from 0.1 μm to 100 μm , preferably in the range from 1 μm to 20 μm , in particular in the range from 1 μm to 10 μm .

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9. A microparticle according to one of claims 1 to 8, wherein the surface of the support structure (measured by means of the BET method) is 1 to 10, preferably 1 to 4 times the geometric surface, assumed as a smooth sphere surface.

10. The use of microparticles according to
one of claims 1 to 9 for the stimulation of
blood cells, in particular T lymphocytes, B lym-
phocytes, granulocytes, monocytes and/or throm-
bocytes.

11. The use according to claim 10 for prepar-
ing a pharmaceutical composition for the treat-
ment of diseases with reduced blood cell counts,
in particular reduced T lymphocyte counts, or of
immunopathologic diseases or for strengthening
the immune reaction in case of vaccinations,
wherein a blood sample is taken from a patient,
wherein as an option the blood cells are iso-
lated from the blood sample, wherein the blood
cells are cultivated in vitro under addition of
a physiologically effective dose of microparti-
cles, and wherein the thus obtained blood cells
are as an option galenically prepared for the
injection or infusion.

12. The use according to claim 10 for prepar-
ing a pharmaceutical composition for the treat-
ment of diseases with reduced blood cell counts
or of immunopathologic diseases or for strength-
ening the immune reaction in case of vaccina-
tions, wherein the microparticles are galenically
prepared preferably for the injection or
infusion.

13. A method for preparing microparticles according to one of claims 1 to 9, comprising the following steps:

5 a) microparticles with a surface formed by one or several different organic polymers are prepared,

 b) as an option, the surface is activated,

10 c) the thus obtained microparticles are incubated with a solution containing CD28-specific superagonistic mAbs, wherein the mAbs preferably are covalently bonded to the surface, or

15 c') the thus obtained microparticles are firstly incubated with a solution containing a spacer compound, wherein the spacer compound preferably is covalently bonded to the surface, as an option followed by a washing step, and subsequently the microparticles with the bonded spacer compound are incubated with a solution containing CD28-specific superagonistic mAbs, wherein the mAbs are covalently or non-cova-
20 lently bonded to the spacer compound, and

25 e) the thus obtained microparticles carrying CD28-specific superagonistic mAbs are separated from the solution and as an option subjected to a washing step.